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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,413	11/14/2001	Yoshifumi Iida	111115	7047

25944 7590 03/25/2003

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EXAMINER
RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
1756	9

DATE MAILED: 03/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,413	IIDA ET AL.	
	Examin r	Art Unit	
	Christopher D RoDee	1756	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-15,18 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of the product claims in Group I in Paper No. 5 is acknowledged. The traversal is on the ground(s) that upon allowability of the product claims (Group I) the process claims (Group II) would be subject to rejoinder and to expedite rejoinder the process claims should be examined at this time. Applicants also state that the subject matter is sufficiently related between the product and process claims so that no burden exists on the Office for concurrent prosecution. This is not found persuasive because the availability of rejoinder at the time of product claim allowability does not negate the propriety of restriction and separate prosecution of the product and process claims. The policy concerning rejoinder is based on the appropriateness of prosecuting the product and process separately. Rejoinder does serve to "short circuit" the restriction process, but serves as a mechanism to give applicants the option of receiving proper method claims having limitations to the same allowable product. During prosecution applicants may find that art applicable to the product would not be applicable to the method. Thus the method claims could be prosecuted in a subsequent divisional application with a broader scope concerning the product than claims only drawn to the product.

A burden of search is placed on the Office by retention of the product and process claims in a single application. Search of the product requires no search of the process while search of the process requires only minimal search of the product, *per se*. Art directed to the product may or may not be applicable to the process claims because of the added manipulative limitations in the process claims. The searches are not coextensive.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 5-7, 9-11, 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka *et al.* in US PAP 2002/0022190 in view of Fujii *et al.* in US Patent 4,855,204.

Iizuka discloses a developer comprising a mixture of toner having a binder resin, a colorant, and a charge control additive, and a ferrite carrier (¶ [0037]), such as for forming a photo, a picture, or a brochure (¶ [0049]). The toner contains an external additive and inorganic fine particles as an internal additive, and has a volume average particle diameter of 5.0 to 9.0 μm. The carrier has a volume average particle diameter of 15 to 60 μm, and the ratio of the volume average particle diameter of the carrier to the volume average particle diameter of the toner is between 3.00 and 7.00 (¶ [0020]). The carrier coating has a conductive particle, such as carbon black (Examples), or a resin particle (¶ [0059]-[0061]).

The inorganic fine particles as the external additive of the toner may be subjected to treatment of imparting a hydrophobic nature (¶ [0026]). Example 1 shows hydrophobic titanium oxide fine particles having a BET specific surface area of 100 m^2/g as an external additive. The toner of the invention can contain inorganic fine particles as an internal additive to expedite oilless fixing (¶ [0074]). The amounts of the toner particles having the particle diameter of 4.0 μm or less are preferably between 6 and 25% by number, more preferably between 6 and 16% by number based on the total number of the toner particles (¶ [0049]). The carrier of the developer has a coating of a fluororesins such as polytetrafluoroethylene, polyvinyl fluoride,

polyvinylidene fluoride and polychlorotrifluoroethylene (¶ [0057]; Carriers B-L). In ¶ [0071], the reference states that the colorant is not particularly limited and identifies various colorants that can be used in the toner, but a white colorant and the claimed amount of white colorant are not disclosed.

Fujii discloses a white toner containing a fixing (binder) resin and a titanium dioxide pigment dispersed in the binder as a colorant (Abstract). The titanium oxide is mixed with the binder in an amount of from 1 to 50 parts, preferably 2 to 30 parts, per 100 parts of the fixing resin (col. 3, l. 50-53). Example 1 produces a specific toner from 20 parts of titanium dioxide, 100 parts of a styrene-acrylic resin, 2 parts of polypropylene, and 1.5 parts of a charge control agent. Fujii discloses useful triboelectric charge values in Table 4, such as values of -20.1 μC/g.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a white colorant as the colorant in Iizuka because Iizuka states that known colorants can be used. Fujii discloses that a white toner is effective where images are to be formed on colored paper (col. 1, l. 10-12). The artisan seeking to form a photo, picture, or brochure would recognize that a white toner would be useful where the image contained white image areas, particularly where the background stock was a color other than white. The artisan would use the disclosed white colorant in the amounts taught by Fujii because they are disclosed as useful for white imaging. The artisan would have been found it obvious to optimize the triboelectric charge on the toner particularly in view of the teachings in Fujii of known and effective charge amounts for electrostatic image development. The charge permits the toner to attract to the image as desired.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka *et al.* in US PAP 2002/0022190 in view of Fujii *et al.* in US Patent 4,855,204 as applied to claims 1, 2, 5-7, 9-11, 13, 14, and 15 above, and further in view of Iida *et al.* in US Patent 5,922,500.

Iizuka and Fujii were discussed above. Iizuka does not disclose the specifics of the hydrophobic titanium oxide, but Iida discloses hydrophobic titanium dioxide additives for toners that have improved fluidity characteristics. The titanium oxide has a specific surface area of from 100 to 350 m^2/g (col. 6, l. 52-54). Binders for the toner include styrene/acrylates (col. 11, l. 10-11). Production Example 1 shows that $TiO(OH)_2$ is reacted with a hydrophobicizing silane in order to produce hydrophobic titanium oxide particles with a BET specific surface area of 180 m^2/g. Also note Production Example 3 that forms hydrophobic titanium oxide by a similar process and has a specific surface area of 130 m^2/g.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the exemplified titanium oxides disclosed by Iida in the invention of Iizuka because Iida discloses a method of making the hydrophobic titanium oxides as external toner additives which are called for by Iizuka. Iida discloses that the titanium oxides of that invention solve prior art problems of fluidity, charging, abrasive character, and environmental stability. Stable charging and environmental characteristics are disclosed as a concern in Iizuka so the artisan would have ample motivation to look to Iida to aid in solving these concerns.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka *et al.* in US PAP 2002/0022190 in view of Fujii *et al.* in US Patent 4,855,204 as applied to claims 1, 2, 5-7, 9-11, 13, 14, and 15 above, and further in view of *Handbook of Imaging Materials* to Diamond, pp. 222-224.

Iizuka and Fujii were discussed above. Iizuka does not disclose the resistivity of the ferrite carrier, but Diamond states that ferrites having resistivities of from 10^7 - 10^{11} are within the range of current interest (see Figure 5.11).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the ferrite of Iizuka with a resistivity between 10^7 - 10^{11} because Diamond teaches that this range is of current scientific interest and the artisan would have been expected to optimize the resistivity in Iizuka to values within the disclosed range (such as at the midpoint of 10^9) in order to produce an effective carrier at a known effective resistivity.

Conclusion

The previously applied art rejections are overcome by applicant's amendments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
March 20, 2003

CHRISTOPHER RODEE
PRIMARY EXAMINER